UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,115	11/24/2003	John G. Sotos	APN-001	6156

7590 12/15/2005

Kenneth M. Kaslow
c/o Apneos Corporation
#41
2033 Ralston Ave.
Belmont, CA 94002

EXAMINER	
MALLARI, PATRICIA C	

ART UNIT	PAPER NUMBER
3736	

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/721,115	SOTOS ET AL.	
	Examiner	Art Unit	
	Patricia C. Mallari	3736	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-52* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 November 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/14/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

The informal drawings filed 11/24/03 are acceptable for examination purposes only. Upon allowance of the application, formal drawings will be required.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the gravity sensing switch as described in claim 5, the arrangement of the plane with respect tot eh patient's body as described in claims 8 and 15, the means for recording data (claims 18-29), the wireless transmitter and receiver of claims 23 and 24, the playback means of claims 25-28, the computing device of claim 29, and indicator means of claim 30 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 6, 8-10, 15-17, 41, 42 are objected to because of the following informalities:

On each of line 5 of claim 6, line 1 of claim 10, line 1 of claim 15, line 1 of claim 16, line 5 of claim 41, and line 3 of claim 45, "superpositioned" should be replaced with "superposed";

On line 1 of claim 8, "the superposition of the two axes" should be replaced with "a superposition of the first axis and the second axis";

On lines 1-2 of claim 9, "the housing" should be replaced with "a housing";

On each of line 2 of claim 15 and line 2 of claim 16, "body, are" should be replaced with "body are";

On each of line 2 and line 3 of claim 15 and on line 2 of claim 16, "tilt switches" should be replaced with "gravity sensing switches";

On line 3 of claim 16, "the sensor" should be replaced with "the gravity sensing switches";

On each of lines 2 and 3 of claim 17, "tilt switch" should be replaced with "gravity sensing switch";

On line 3 of claim 42, "the superposition" should be replaced with "a superposition". Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 7-17 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 7 recites the limitation" the portion of the patient's body to which the system is coupled" on lines 3-4 of the claim. Claim 8 recites, "a plane . . . is at an angle to the portion of the patient's body" on lines 1-2 of the claim. Claim 9 additionally recites, "the portion of the patient's body to which the housing is coupled" on lines 1-2 of the claim. Claim 12 recites, "the portion of the patient's body to which the system is coupled" on line 4 of the claim. In each instance, the human body is non-statutory subject matter and cannot positively be claimed. To overcome this rejection, for example, lines 3-4 of claim 7 should be replaced with "indicative of changes in orientation of the portion of the patient's body to which the system is adapted to be coupled".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 4-13, 15-19, 21, 29, 31-37, 39-47, 49, and 50 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,514,218 to Yamamoto. Yamamoto teaches a system for monitoring a patient comprising a vibration sensing means (microphone) 3 for collecting tracheal vibration information form the patient and position sensing means that changes state depending upon its orientation with respect to the earth's gravity, at least a portion of which is substantially adjacent to a portion of the vibration sensing means (figs. 1, 4, 6a-6c; col. 3, line 60-col. 4, line 5; col. 4, lines 42-49; col. 6, lines 40-65; col. 7, line 55-col. 8, line 62 of Yamamoto).

Regarding claims 2, 36, and 37, the vibration sensing means is coupled near a tracheal segment of the patient (figs. 1 & 16; col. 4, lines 42-45 of Yamamoto).

Regarding claims 4-11, 15-17, 39-47, the position sensing means 7 comprises first and second gravity sensing switches 71a, 71b having at least one axis of orientation with respect to gravity such that the switch occupies different states depending upon which end of the axis is closer to gravity source (figs. 6a-6c, 7a; col. 7, line 10-col. 9, line 21 of Yamamoto). With further regard to claims 6-11, 15, 16, and 41-47 first gravity sensing switch 71a has a first axis of orientation with respect to gravity and second gravity sensing switch 71b has a second axis of orientation with respect to gravity which can be superposed at an angle to the first axis (fig. 6a; 7a of Yamamoto).

With further regard to claims 5 and 47, the gravity sensing switch comprises a tilt switch having a body 75 containing a cavity, a plurality of contact point pairs 77a-d 78a-d within the cavity, and an electrically conductive material 76 that is able to move within the cavity, such that as the orientation of the body with respect to gravity changes, different pairs of contact points are connected, thus providing a signal indicative of the tilt switch's orientation with respect to gravity (figs. 6b & 6c; col. 7, lines 22-54 of Yamamoto).

With further regard to claims 7-13, and 15-17 housing 51, belts 52, 53, and adhesive tape couple the system to at least a portion of the patient's body, such that the position sensing means provides information indicative of changes in orientation of the portion of the patient's body to which the system is coupled (figs. 1, 4; col. 4, lines 42-44; col. 5, lines 23-30 of Yamamoto).

Also regarding claims 8-11, 15,16, and 42, a plane containing a superposition of the two axes is at least at an angle to the portion of the patient's body such that the position sensing means provides information indicative of which of at least two positions the body portion is in with respect to the earth's gravity (fig. 4, 6a, 7a of Yamamoto). With further regard to claims 9-11, 15, and 16 a housing 5 is coupled to an axial portion of the patient's body (figs. 1, 4, 6a, 7a of Yamamoto). With further regard to claims 10 and 11, the angle between the two superposed axes is substantially a right angle (figs. 6a, 7a; col. 9, lines 17-21 of Yamamoto). With further regard to claim 11, the angle between the plane and the axial portion of the patient's body is substantially a right angle, as shown in figure 4 of Yamamoto.

With further regard to claims 13 and 46, a housing 51 contains at least a portion of the vibration sensing means and a portion of the position sensing means (fig. 16; col. 14, lines 32-40 of Yamamoto), wherein the relay cable 12 and relay unit 6 also constitute a portion of the vibration sensing means.

With further regard to claims 15-17, 40, and 43-45, the angle between the superposed axes of the two gravity sensing switches and the angle between the plane and the axial portion of the patient's body are such that the switches indicate which of at least two positions the axial portion of the patient is in, the indicated positions including substantially supine, substantially prone, substantially left lateral decubitus, and substantially right lateral decubitus ((col. 7, line 66-col. 8, line 61 of Yamamoto).

Regarding claims 18, 19, 21, 29, 33-35, 49, and 50 recording means records tracheal vibration information and data representing the state of the position sensing means or orientation of the body portion over time (col. 10, line 66-col. 11, line 38 of Yamamoto). With further regard to claim 21, the recording means further comprises a memory 89, a power source 80, conversion means 88 for receiving and digitizing the tracheal vibration information and information indicative of the orientation of the patient's body, and means 90 for writing the digital data into the memory (col. 10, line 66-col. 11, line 38 of Yamamoto). With further regard to claim 19, a computing device 90 reads and performs calculations on the recorded data (col. 11, line 31-col. 12, line 32 of Yamamoto). With further regard to claim 50, the memory is non-volatile memory and is coupled to the patient such that the patient may be in a state of diminished

consciousness without being disturbed during the period of diminished consciousness (figs. 1 & 16; col. 11, lines 30-44 of Yamamoto).

Regarding claims 31-37, 39-47, 49, and 50 the description of the apparatus of Yamamoto inherently discloses a method of using such apparatus.

Regarding claim 35, the data is recorded during a period of time associated with diminished consciousness of the patient (col.2, lines 4-19; col. 8, lines 4-61 of Yamamoto).

Claims 1-4, 6-9, 12, 15, 17-19, and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,263,491 to Thornton (herein referred to as Thornton '491). Thornton '491 teaches a system for monitoring a patient comprising a vibration sensing means (microphone) M1 for collecting tracheal vibration information from the patient and a position sensing means 16, SW1, SW2 that changes state depending on its orientation with respect to the earth's gravity, at least a portion of which is substantially adjacent to a portion of the vibration sensing means (fig. 1; col. 2, line 56-col. 3, line12 of Thornton '491).

Regarding claim 3, the position sensing means 16 comprises an accelerometer (col. 2, line 59 of Thornton '491).

Regarding claims 4, 6-9, and 16 the position sensing means comprises a gravity sensing switches SW1, SW2 having at least one axis of orientation with respect to gravity such that the switch occupies different states depending on which end of the axis is closer to the source of gravity (col. 2, lines 62-54; col. 4, lines 37-50 of Thornton

'491; also see col. 2, lines 52-57; col. 3, lines 21-35 of US Patent No. 4,830,021). With further regard to claim 6, first switch SW1 has a first axis of orientation with respect to gravity and a second switch SW2 has a second axis of orientation with respect to gravity, which can be superposed at an angle to the first axis (fig. 1 of Thornton '491).

With further regard to claims 7-9, 12, 15, and 17 adhesive and a belt (or collar) are used to couple the system to at least a portion of the patient's body, such that the position sensing means 16, SW1, SW2 provides information indicative of changes in orientation of the portion of the patient's body to which the system is coupled (fig. 1; col. 2, lines 59-66; col. 4, lines 18-20; col. 5, lines 51-69 of Thornton '491). With further regard to claim 8, a plane containing a superposition of the first axis and the second axis is at an angle to the patient's body portion to which the system is coupled such that the position sensing means provides information indicative of which of two or more positions the portion of the patient's body is in with respect to the earth's gravity (fig. 1; col. 5, lines 51-69 of Thornton '491).

With further regard to claim 9, a housing, shown as reference numeral 12 in figure 1 of Thornton '491, is adapted to be coupled to an axial portion of the patient's body.

With further regard to claims 15 and 17, the angle between the superposed axes and the angle between the plane and the axial portion of the patient's body are such that the tilt switches indicate which of two or more positions the axial portion of the patient's body is in, one of which positions is substantially supine (lying down) and one of which positions is not substantially supine (col. 4, lines 42-44 of Thornton '491).

Regarding claims 18, 19, and 29, a recording means 12 records tracheal vibration information and the state of the position sensing means data over time (col. 3, lines 38-52 of Thornton '491). With further regard to claim 29, a computing device reads and performs calculations on the recorded data (figs. 2' & 2"; col. 3, lines 39-col. 6, line 42 of Thornton '491).

Claims 1, 2, 4, 5, 12-14, 17-19, 21, 25, and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,275,159 to Griebel. Griebel discloses a system for monitoring a patient comprising a vibration sensing means (microphone) 4, 16, 17 for collecting tracheal vibration information from the patient and a position sensing means 6, 22 that changes state depending upon its orientation with respect to the earth's gravity, at least a portion of which is substantially adjacent to a portion o the vibration sensing means (figs. 1 & 2; col. 5, lines 30-38; col. 6, lines 5-22 of Griebel).

Regarding claims 4, 5, and 17, the position sensing means 6 comprises a gravity sensing switch having at least one axis of orientation with respect to gravity such that the switch occupies different states depending upon which end of the axis is closer to the source of gravity (col. 6, lines 5-22 of Griebel). With further regard to claim 5, the switch further comprises a tilt switch having a body containing a cavity, a plurality of contact point pairs within the cavity, and an electrically conductive material that is able to move within the cavity, such that, as the orientation of the body with respect to gravity changes, different pairs of contact points are connected, thus providing a signal indicative of tilt switch's orientation with respect to gravity (col. 6, lines 8-17 of Griebel).

With further regard to claim 17, housing 2 and adhesive serve as means for simultaneously coupling the system to an axial portion of the patient's body with the axis of the gravity sensing switch at an angle to the axial portion such that the tilt switch provides information indicative of which of two or more positions the axial portion of the patient's body is in, one of which is substantially supine and one of which is not substantially supine (fig. 2; col. 6, lines 5-22 of Griebel).

Regarding claim 12-14 and 30, straps 24, 25, housing 2, and adhesive serve as means for simultaneously coupling at least a portion of the vibration sensing means and a portion of the position sensing means to portion of the patient's body, such that the position sensing means tracks changes in orientation of the body portion to which the system is coupled (fig. 2; col. 5, lines 32-38; col. 6, lines 5-7 of Griebel). With further regard to claims 13 and 14, a housing contains at least a portion of each of the vibration sensing means and position sensing means, wherein housing 2 contains the position analyzer 22 portion of the position sensing means and the filter and amplifier 16, 17, portions of the vibration sensing means, and the hollow tetrahedron of the position pickup further comprises another portion of the housing (figs. 2 & 5; col. 6, lines 5-17; col. 6, lines 40-57; col. 7, lines 10-13 of Griebel). With further regard to claim 14, adhesive material is coupled to a portion of the housing (col. 6, lines 5-8 of Griebel). With further regard to claim 30, the housing bears an indicator means for showing the orientation the housing is to have when coupled to the body (col. 6, lines 5-8 of Griebel).

Regarding claims 18, 19, 21, and 25, a recording means records tracheal vibration information data and the state of the position sensing means data over time or

data indicative of the orientation of the portion of the patient's body to which the system is coupled over time (col. 6, lines 23-36; col. 7, lines 14-27 of Griebel). With further regard to claim 21, the recording means further comprises a memory, power source, conversion means for digitizing the tracheal vibration information and information indicative of the orientation of the patient's body, and means for writing the digital data into the memory (col. 6, lines 32-36 and lines 55-57; col. 7, lines 10-29 of Griebel). With further regard to claim 25, a playback means is capable of substantially recreating the collected tracheal vibration information from the recording means (fig. 6; col. 7, lines 52-69 of Griebel).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto, as applied to claims 1, 2, 4-13, 15-19, 21, 29, 31-37, 39-47, 49, and 50 above, and further in view of US Patent No. 6,241,683 to Macklem et al. Yamamoto is silent as to the details of sampling the tracheal vibration information. However, Macklem teaches sampling tracheal vibration information at a rate of 3000 Hz (col. 6, lines 2-16 of Macklem), a rate that is at least 2 kHz. Therefore, it would have been

obvious to one of ordinary skill in the art at the time of invention to use the sampling rate of Macklem in the system of Yamamoto, since Yamamoto teaches measuring and recording tracheal vibration information and Macklem discloses 3000 Hz as an appropriate sampling rate for measuring and recording such information.

Claim 22 is rejected under 35 U.S.C 103(a) as being unpatentable over Yamamoto, as applied to claims 1, 2, 4-13, 15-19, 21, 29, 31-37, 39-47, 49, and 50 above, and further in view of US Patent No. 6, 551,252 to Sackner et al. Yamamoto is silent as to the capacity of the memory in terms of megabytes (MB). However, Sackner teaches an ambulatory monitoring system comprising a recording means having a memory capable of storing 128 MB for 24 hours worth of data (col. 18, lines 3-39 of Sackner), wherein such a memory is also capable of storing 32 MB of data. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use a memory capable of storing 128 MB of data in the system of Yamamoto, since Yamamoto teaches a recording means in an ambulatory monitoring system that has a memory capable of storing data for 24 hours, and Sackner teaches a memory of 128 MB is of sufficient size to store 24 hours worth of data in an ambulatory system.

Claims 24 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto, as applied to claims 1, 2, 4-13, 15-19, 21, 29, 31-37, 39-47, 49, and 50 above, and further in view of US Patent No. 6,432,061 to Nissilä et al. Yamamoto teaches lacks a wireless transmitter and receiver. However, Nissilä teaches a patient

monitoring system wherein the sensor 7 may be connected to the recording means 9 by either a wired connection 21 or wireless connection 22, the wireless connection 22 comprising a wireless transmitter 22a and receiver 22b (figs. 2 & 3; col. 4, lines 15-44 of Nissilä). In the wireless embodiment, the signals are converted to digital data before transmission (fig. 5 of Nissilä). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use a wireless connection, as described by Nissilä in place of the wired connection between the sensing means and recording means of Yamamoto, since Nissilä teaches the two means of connection as being functionally equivalent means for transmitting data from a sensing means to a recording means.

Claims 23 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto as applied to claims 1, 2, 4-13, 15-19, 21, 29, 31-37, 39-47, 49, and 50 above, and further in view of US Patent No. 6,168,568 to Gavriely. Yamamoto lacks a wireless transmitter and transceiver. However, Gavriely teaches a system in which either a wired or wireless microphone may be used to measure tracheal sounds or vibrations, wherein, when a wireless microphone is used, data representing tracheal vibrations is sent to a wireless remote receiver prior to digitizing the signals (figs. 1, 3-5; col. 15, lines 9-45 of Gavriely). Therefore, it would have been obvious to one of ordinary skill in the art to use a wireless receiver and transmitter in place of the wired connection of Yamamoto, since Gavriely teaches wired and wireless connections as being functionally equivalent means of data communication.

Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto as applied to claims 1, 2, 4-13, 15-19, 21, 29, 31-37, 39-47, 49, and 50 above, and further in view of US Patent No. 6,168,568 to Gavriely. Yamamoto is silent as to the frequency response of the microphone for sensing tracheal vibrations and lacks a playback device. However, Gavriely teaches a patient monitoring system wherein tracheal sounds or vibrations are measured using a microphone have a frequency response of 75-2000 Hz (figs. 1-5; col. 11, lines 14-16; col. 12, lines 32-42 of Gavriely), or at least approximately 400 to 100 Hz. Gavriely further teaches a playback means 14 further comprising a sound output device 24 (fig. 1; col. 11, line 51-col. 12, line 15 of Gavriely). The device 24 is capable of reproducing sound (col. 11, lines 51-col. 12, line 7 of Gavriely), wherein any reasonable output from the output device 24 would be of at least approximately the same frequency range of the frequency response at the microphone and sound substantially the same as listening through a listening device at the position of the microphone at the time of collection the tracheal vibration information. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the microphone of Gavriely as that of Yamamoto, since Yamamoto teaches using a microphone to detect tracheal vibrations, and Gavriely describes an appropriate such microphone. It would further have been obvious to combine the playback means of Gavriely with the system of Yamamoto in order to allow simultaneous auscultation and visual monitoring of breath sounds, for example (col. 12, lines 1-7 of Gavriely).

Claims 38 and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karakasoglu in view of Thornton '491. Karakasoglu teaches a method for monitoring a patient wherein tracheal vibration information is collected from a patient at a location on the patient's body by coupling a vibration sensing means to the patient (col. 5, lines34-38; figs. 1 & 2 of Karaksoglu), and information indicative of the orientation of a portion of the patient's body is obtained substantially adjacent to the location at which the tracheal vibration information is collected (fig. 1; col.. 5, lines 28-30 of Karaksoglu). Karakasoglu is silent as to the details of the body position sensor S7.

However, Thornton '491, as described above, teaches a position sensing means comprising an accelerometer 16 and gravity sensing switches SW1 and SW2, the position sensing means changing state depending upon its orientation with respect to gravity (col. 2, lines 59-66; col. 4, lines 38-63; col. 5, lines 30-69 of Thornton '491). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the position sensing means of Thornton '491 as that of Karaksoglu, since Karaksoglu teaches using a position sensing means, and Thornton '491 describes an appropriate such position sensing means.

Regarding claims 41-43, the position sensing means comprises a first gravity sensing device SW1 having a first axis of orientation with respect to gravity and a second gravity sensing device SW2 having a second axis of orientation with respect to gravity which can be superposed at an angle to the first axis (col. 2, lines 62-54; col. 4, lines 37-50 of Thornton '491; also see col. 2, lines 52-57; col. 3, lines 21-35 of US

Patent No. 4,830,021). With further regard to claim 42, the gravity sensing devices SW1 and SW2 are coupled to an axial portion of the patient's body with a plane containing a superposition of the two axes at an angle to an axial portion of the patient's body such that the states of gravity sensing devices provide information indicative of which of two or more positions the axial portion of the patient's body is in (fig. 1; col. 4, lines 37-50; col. 5, lines 51-68 of Thornton '491). With further regard to claim 43, the angle between the two axes and the angle between the plane containing the devices SW1 and SW2 and the axial portion of the patient's body is such that the states of the gravity sensing devices SW1 and SW2 provide information to indicate whether the patient is substantially supine or not substantially supine (fig. 1; col. 4, lines 37-50 of Thornton '491).

Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto, as applied to claims 1, 2, 4-13, 15-19, 21, 29, 31-37, 39-47, 49, and 50 above, and further in view of US Patent No. 6,949,475 to Hatlesad. Yamamoto fails to teach using an accelerometer as a first gravity sensing device. However, Hatlesad teaches that either an accelerometer or tilt switch to sense patient posture (col. 5, lines 5-26; col. 7, lines 45-56 of Hatlesad). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use an accelerometer as the first gravity sensing device in place of the tilt sensor of Yamamoto, since Hatlesad teaches an accelerometer and a tilt sensor as being functionally equivalent means of sensing posture.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent NO. 6,095,991 to Krausman et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia C. Mallari whose telephone number is (571) 272-4729. The examiner can normally be reached on Monday-Friday 10:00 am-6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max Hindenburg can be reached on (571) 272-4726. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patricia Mallari
Patent Examiner
Art Unit 3736

ROBERT L. NASSER